

Incorporation by reference:

Relevant electrostatic spray devices and cartridges are described in the following commonly-assigned, concurrently-filed U.S. Patent Applications, and hereby incorporated by reference:

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“Electrostatic Spray Device”, which is assigned Attorney Docket No. 8395.

“Electrostatic Spray Device”, which is assigned Attorney Docket No. 8396.

“Disposable Cartridge For Electrostatic Spray Device”, which is assigned Attorney Docket No. 8397.

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WHAT IS CLAIMED IS:

1. An electrostatic spraying device being configured and disposed to deliver a product from a reservoir through a channel to a point of dispersal, to electrostatically charge the product via a high power electrode after the product has exited the reservoir and to dispense the product from an exit orifice of a nozzle, wherein said device comprises:
  - 5 a power source to supply an electrical charge; and
  - a high voltage power supply, said high voltage power supply being electrically connected to said power source and configured to charge the high voltage electrode, said high voltage power supply configured to supply a variable output signal in response to a feedback signal.
- 10 2. The electrostatic spraying device of Claim 1, wherein said feedback signal monitors a voltage level at said high voltage electrode.
- 3 The electrostatic spraying device of Claim 1, wherein said feedback signal monitors a voltage level within said high voltage power supply.
- 15 4. The electrostatic spraying device of Claim 3, wherein said feedback signal monitors a voltage level at a primary coil of a high voltage transformer.
5. The electrostatic spraying device of Claim 3, wherein said feedback signal monitors a voltage level at a storage capacitor within said high voltage power supply.
- 20 6. The electrostatic spraying device of Claim 1, wherein said high voltage power supply alters a current level supplied through said high voltage power supply in response to said feedback signal.
- 25 7. The electrostatic spraying device of Claim 1, wherein said high voltage power supply varies said output by varying a frequency of a control signal of a DC/DC converter of said high voltage power supply.
- 30 8. The electrostatic spraying device of Claim 1, wherein said high voltage power supply is further configured to deactivate the delivery of the product from the reservoir prior to deactivating the high voltage power supply.

9. The electrostatic spraying device of Claim 1, wherein said high voltage power supply is further configured to activate the high voltage power supply before activating the delivery of the product from the reservoir.

5 10. The electrostatic spraying device of Claim 1, wherein said high voltage power supply adjusts said output signal of said high voltage power supply in response to a change in a flow rate of the product.

10 11. The electrostatic spraying device of Claim 1, wherein said high voltage power supply is encased in a sealant.

12. The electrostatic spraying device of Claim 1, further comprising a moisture-proof barrier for sealing the device.

15 13. The electrostatic spraying device of Claim 1, further comprising a high voltage resistor electrically connected to an output of the high voltage power supply to drain a stored charge of the high voltage power supply.

20 14. The electrostatic spraying device of Claim 13, wherein said high voltage resistor has a resistance selected such that said resistor is capable to drain said stored charge of the high voltage power supply in less than about 20 seconds after said high voltage power supply is deactivated.

25 15. The electrostatic spraying device of Claim 1, further comprising a high voltage resistor electrically connected to the high voltage electrode to drain a stored charge of the high voltage power supply.

30 14. The electrostatic spraying device of Claim 13, wherein said high voltage resistor has a resistance selected such that said resistor is capable to drain said stored charge of the high voltage power supply in less than about 20 seconds after said high voltage power supply is deactivated.

15. The electrostatic spraying device of Claim 1, further comprising a mechanical switch configured to drain a stored charge of the high voltage power supply when said high voltage power supply is deactivated.

16. The electrostatic spraying device of Claim 1, further comprising an electrical mechanical switch configured to drain a stored charge of the high voltage power supply when said high voltage power supply is deactivated.